

## PUBLICATIONS: CLIMATE

### Greenhouse Gases, Dynamics, and Climate

1993

Angevine, W. M., S. K. Avery, and G. L. Kok, Virtual heat flux measurements from a boundary-layer profiler-RASS compared to aircraft measurements, *J. Appl. Meteor.*, 32, 1901-1907, 1993.

Angevine, W. M., S. K. Avery, W. L. Ecklund, and D. A. Carter, Fluxes of heat and momentum measured with a boundary-layer wind profiler radar-radio acoustic sounding system, *J. Appl. Meteor.*, 32, 73-80, 1993.

Chan, K. R., L. Pfister, T. P. Bui, S. W. Bowen, J. Dean-Day, B. L. Gary, D. W. Fahey, K. K. Kelly, C. R. Webster, and R. D. May, A case study of the mountain lee wave event of January 6, 1992, *Geophys. Res. Lett.*, 20, 2551-2554, 1993.

Fehsenfeld, F. C., and S. C. Liu, Tropospheric ozone: Distribution and sources, in *Global Atmospheric Chemical Change*, C. N. Hewitt and W. T. Sturges, eds., Elsevier Applied Science, New York, 169-231, 1993.

Fritts, D. C., and T. E. Van Zandt, Spectral estimates of gravity wave energy and momentum fluxes. Part I: Energy dissipation, acceleration, and constraints, *J. Atmos. Sci.*, 50, 3685-3694, 1993.

Gage, K. S., J. R. McAfee, D. A. Carter, W. L. Ecklund, G. C. Reid, A. C. Riddle, P. E. Johnston, and B. B. Balsley, Wind profiler yields observations of ENSO signal, *EOS, Trans. AGU*, 74, 137 and 142, 1993.

Gutzler, D. S., and R. A. Madden, Seasonal variations of the 40-50 day oscillation in atmospheric angular momentum., *J. Atmos. Sci.*, 50, 850-860, 1993.

Gutzler, D. S., and R. D. Rosen, Interannual variability of wintertime snow cover across the Northern Hemisphere, *J. Clim.*, 5, 1441-1447, 1993.

Gutzler, D. S., Uncertainties in climatological tropical humidity profiles: Some implications for estimating the greenhouse effect., *J. Clim.*, 6, 978-982, 1993.

Kelly, K. K., M. H. Proffitt, K. R. Chan, M. Loewenstein, J. R. Podolske, S. E. Strahan, J. C. Wilson, and D. Kley, Water vapor and cloud water measurements over Darwin during the STEP 1987 tropical mission, *J. Geophys. Res.*, 98, 8713-8723, 1993.

Knollenberg, R. G., K. K. Kelly, and J. C. Wilson, Measurements of high number densities of ice crystals in the tops of tropical cumulonimbus, *J. Geophys. Res.*, 98, 8639-8664, 1993.

Lin, X., and W. L. Chameides, CCN formation from DMS oxidation without SO<sub>2</sub> acting as an intermediate, *Geophys. Res. Lett.*, 20, 579-582, 1993.

Martner, B. E., D. B. Wuertz, B. B. Stankov, R. G. Strauch, E. R. Westwater, K. S. Gage, W. L. Ecklund, C. L. Martin, and W. F. Dabberdt, An evaluation of wind profiler, RASS, and microwave radiometer performance, *Bull. Amer. Meteorol. Soc.*, 74, 599-613, 1993.

Mlynczak, M. G., and S. Solomon, A detailed evaluation of the heating efficiency in the middle atmosphere, *J. Geophys. Res.*, 98, 10517-10541, 1993.

Parrish, D. D., C. J. Hahn, E. J. Williams, R. B. Norton, F. C. Fehsenfeld, H. B. Singh, J. D. Shetter, B. W. Gandrud, and B. A. Ridley, Reply, *J. Geophys. Res.*, 98, 14995-14997, 1993.

## PUBLICATIONS: CLIMATE

- Parrish, D. D., J. S. Holloway, M. Trainer, P. C. Murphy, G. L. Forbes, and F. C. Fehsenfeld, Export of North American ozone pollution to the North Atlantic Ocean, *Science*, 259, 1436-1439, 1993.
- Ravishankara, A. R., S. Solomon, A. A. Turnipseed, and R. F. Warren, Atmospheric lifetimes of long-lived halogenated species, *Science*, 259, 194-199, 1993.
- Reid, G. C., and K. S. Gage, Troposphere-stratosphere coupling in the tropics: The role of El Niño and the QBO, in *The Role of the Stratosphere in Global Change*, M.-L. Chanin, ed., Springer-Verlag, Berlin, Vol. I.8, 245-266, 1993.
- Rogers, R. R., D. Baumgardner, S. A. Ethier, D. A. Carter, and W. L. Ecklund, Comparison of raindrop size distribution measured by radar wind profiler and by airplane, *J. Appl. Meteor.*, 32, 694-699, 1993.
- Rogers, R. R., W. L. Ecklund, D. A. Carter, K. S. Gage, and S. A. Ethier, Research applications of a boundary-layer wind profiler, *Bull. Amer. Meteorol. Soc.*, 74, 567-580, 1993.
- Selverstone, J., and D. S. Gutzler, Post-125 Ma carbon storage associated with continent-continent collision, *Geology*, 21, 885-888, 1993.
- Thomson, D. S., and D. M. Murphy, Laser-induced ion formation thresholds of aerosol particles in a vacuum, *Appl. Opt.*, 32, 6818-6826, 1993.
- Tuck, A. F., J. M. Russell, III, and J. E. Harries, Stratospheric dryness: Antiphased desiccation over Micronesia and Antarctica, *Geophys. Res. Lett.*, 20, 1227-1230, 1993.
- Turnipseed, A. A., S. B. Barone, and A. R. Ravishankara, The reactions of CH<sub>3</sub>S and CH<sub>3</sub>SOO with O<sub>3</sub>, NO<sub>2</sub>, and NO, *J. Phys. Chem.*, 97, 5926-5934, 1993.
- Weinstock, J., Lagrangian coordinates and their application to gravity wave spectra, in *Coupling Processes in the Lower and Middle Atmosphere*, E. V. Thrane, T. A. Blix and D. C. Fritts, eds., Kluwer Academic Publishers, Loen, Norway, Vol. 397, 241-260, 1993.
- Akimoto, H., D. D. Davis, S. C. Liu, and PEM-West A Science Team, Atmospheric chemistry of the east Asian northwest Pacific region, in *Global Atmospheric-Biospheric Chemistry*, R. G. Prinn, ed., Plenum Press, New York, 71-82, 1994.
- Albritton, D. L., Atmospheric chemistry and global change: The scientist's viewpoint, in *The Chemistry of the Atmosphere: Its Impact on Global Change*, J. G. Calvert, ed., Blackwell Scientific Publications, 3-9, 1994.
- Angevine, W. M., A. B. White, and S. K. Avery, Boundary-layer depth and entrainment zone characterization with a boundary-layer profiler, *Boundary-Layer Meteorol.*, 68, 375-385, 1994.
- Angevine, W. M., and W. L. Ecklund, Errors in radio acoustic sounding of temperature, *J. Atmos. Oceanic Technol.*, 11, 837-842, 1994.
- Angevine, W. M., R. J. Doviak, and Z. Sorbjan, Remote sensing of vertical velocity variance and surface heat flux in a convective boundary layer, *J. Appl. Meteor.*, 33, 977-983, 1994.
- Angevine, W. M., W. L. Ecklund, D. A. Carter, K. S. Gage, and K. P. Moran, Improved radio acoustic sounding techniques, *J. Atmos. Oceanic Technol.*, 11, 42-49, 1994.
- Apel, E. C., J. G. Calvert, and F. C. Fehsenfeld, The Nonmethane Hydrocarbon Intercomparison Experiment (NOMHICE): Tasks 1 and 2, *J. Geophys. Res.*, 99, 16651-16664, 1994.

## PUBLICATIONS: CLIMATE

- Barone, S. B., A. A. Turnipseed, T. Gierczak, and A. R. Ravishankara, Quantum yields of H(<sup>2</sup>S) and CH<sub>3</sub>S(<sup>2</sup>E) from the photolysis of simple organosulfur compounds at 193, 222, and 248 nm, *J. Phys. Chem.*, 98, 11969-11977, 1994.
- Gage, K. S., C. R. Williams, and W. L. Ecklund, UHF wind profilers: A new tool for diagnosing tropical convective cloud systems, *Bull. Amer. Meteorol. Soc.*, 75, 2289-2294, 1994.
- Gage, K. S., J. R. McAfee, W. L. Ecklund, D. A. Carter, C. Williams, P. E. Johnston, and A. C. Riddle, The Christmas Island wind profiler: A prototype VHF wind-profiling Doppler radar for the Tropics, *J. Atmos. Oceanic Technol.*, 11, 22-31, 1994.
- Gutzler, D. S., G. N. Kiladis, G. A. Meehl, K. M. Weickmann, and M. Wheeler, Large-scale variability across the tropical western Pacific during TOGA COARE, *J. Clim.*, 7, 1606-1622, 1994.
- Gutzler, D. S., G. N. Kiladis, G. A. Meehl, K. M. Weickmann, and M. Wheeler, The global climate of December 1992-February 1993.  
Part II: Large-scale variability across the Tropical Western Pacific during TOGA COARE, *J. Clim.*, 7, 1606-1622, 1994.
- Lin, X., B. A. Ridley, J. G. Walega, G. Hübner, S. A. McKeen, E.-Y. Hsie, M. Trainer, F. C. Fehsenfeld, and S. C. Liu, Parameterization of subgrid scale convective cloud transport in a mesoscale regional chemistry model, *J. Geophys. Res.*, 99, 25615-25630, 1994.
- McAfee, J. R., K. S. Gage, and R. G. Strauch, Examples of vertical velocity comparison from collocated VHF and UHF profilers, *Radio Sci.*, 29, 879-880, 1994.
- Mellouki, A., and A. R. Ravishankara, Does the HO<sub>2</sub> radical react with H<sub>2</sub>S, CH<sub>3</sub>SH, and CH<sub>3</sub>SCH<sub>3</sub>, *Int. J. Chem. Kinet.*, 26, 355-365, 1994.
- Nastrom, G. D., and J. M. Warnock, Vertical motions estimated using data from a single station and a form of the adiabatic method, *J. Appl. Meteor.*, 33, 65-73, 1994.
- Nastrom, G. D., and T. Van Zandt, On the mean vertical motions seen by radar wind profilers, *J. Appl. Meteor.*, 33, 984-995, 1994.
- Nastrom, G. D., W. L. Clark, K. S. Gage, T. E. Van Zandt, J. M. Warnock, R. Creasey, and P. M. Pauley, Case studies of the vertical velocity seen by the Flatland radar compared with indirectly computed values, *J. Atmos. Oceanic Technol.*, 11, 14-21, 1994.
- Paluch, I. R., D. H. Lenschow, S. Siems, S. McKeen, G. L. Kok, and R. D. Schillawski, Evolution of the subtropical marine boundary layer: Comparison of soundings over the eastern Pacific from FIRE and HaRP, *J. Atmos. Sci.*, 51, 1465-1479, 1994.
- Parrish, D. D., J. S. Holloway, and F. C. Fehsenfeld, Routine, continuous measurement of carbon monoxide with parts per billion precision, *Environ. Sci. Technol.*, 28, 1615-1618, 1994.
- Parsons, D., W. Dabberdt, H. Cole, T. Hock, C. Martin, A. L. Barrett, E. Miller, M. Spowart, M. Howard, W. Ecklund, D. A. Carter, K. S. Gage, and J. Wilson, The integrated sounding system: Description and preliminary observations from TOGA COARE., *Bull. Amer. Meteorol. Soc.*, 75, 553-567, 1994.
- Pauley, P. M., R. L. Creasey, W. L. Clark, and G. D. Nastrom, Comparisons of horizontal winds measured by opposing beams with the Flatland ST radar and between Flatland measurements and NMC analyses, *J. Atmos. Oceanic Tech.*, 11, 256-274, 1994.
- Penkett, S. A., F. C. Fehsenfeld, and J. M. Prospero, Chapter 7 - Atmospheric chemistry and composition of air over the North Atlantic Ocean, in *Global Atmospheric - Biospheric Chemistry*, R. G. Prinn, ed., Plenum Press, New York, 19-38, 1994.

## PUBLICATIONS: CLIMATE

- Reid, G. C., Seasonal and interannual temperature variations in the tropical stratosphere, *J. Geophys. Res.*, 99, 18923-18932, 1994.
- Rogers, R. R., S. A. Cohn, W. L. Ecklund, J. S. Wilson, and D. A. Carter, Experience from one year of operating a boundary-layer profiler in the center of a large city, *Ann. Geophys.*, 12, 529-540, 1994.
- Schauffler, S. M., and J. S. Daniel, On the effects of stratospheric circulation changes on trace gas trends, *J. Geophys. Res.*, 99, 25747-25754, 1994.
- Solomon, S., J. B. Burkholder, A. R. Ravishankara, and R. R. Garcia, On the ozone depletion and greenhouse warming potentials of  $\text{CF}_3\text{I}$ , *J. Geophys. Res.*, 99, 20929-20935, 1994.
- Thomson, D. S., and D. M. Murphy, Analyzing single aerosol particles in real time, *Chemtech*, 24, 30-35, 1994.
- Warnock, J. M., T. E. Van Zandt, W. L. Clark, S. J. Franke, H. S. Kim, G. D. Nastrom, and P. E. Johnston, Measurements of synoptic-scale vertical velocities by two nearby VHF Doppler radars in very flat terrain, *J. Atmos. Oceanic Technol.*, 11, 5-13, 1994.

## 1995

- Angevine, W. M., and J. I. MacPherson, Comparison of wind profiler and aircraft wind measurements at Chebogue Point, Nova Scotia, *J. Atmos. Oceanic Technol.*, 12, 421-426, 1995.
- Barone, S. B., A. A. Turnipseed, and A. R. Ravishankara, Role of adducts in the atmospheric oxidation of dimethyl sulfide, *Faraday Discuss. Chem. Soc.*, 100, 39-54, 1995.
- Carter, D. A., K. S. Gage, W. L. Ecklund, W. M. Angevine, P. E. Johnston, A. C. Riddle, J. Wilson, and C. R. Williams, Developments in UHF lower tropospheric wind profiling at NOAA's Aeronomy Laboratory, *Radio Sci.*, 30, 977-1001, 1995.
- Cohn, S. A., R. R. Rogers, S. Jascourt, W. L. Ecklund, D. A. Carter, and J. S. Wilson, Interactions between clear-air reflective layers and rain observed with a boundary-layer wind profiler, *Radio Sci.*, 30, 323-341, 1995.
- Daniel, J. S., S. Solomon, and D. L. Albritton, On the evaluation of halocarbon radiative forcing and global warming potentials, *J. Geophys. Res.*, 100, 1271-1285, 1995.
- DMay, P. T., W. L. Ecklund, and G. D. Hess, Spectral and bispectral characteristics of wind variability at Darwin, Australia observed by a VHF radar wind profiler, *Q. J. R. Meteorol. Soc.*, 121, 527-544, 1995.
- Ecklund, W. L., K. S. Gage, and C. R. Williams, Tropical precipitation studies using a 915-MHz wind profiler, *Radio Sci.*, 30, 1055-1064, 1995.
- Gutzler, D. S., and L. M. Hartten, Daily variability of lower tropospheric winds over the tropical western Pacific, *J. Geophys. Res.*, 100, 22999-23008, 1995.
- Kaluzhny, M., and D. M. Murphy, Innovations on a quartz crystal microbalance frost-point hygrometer, *J. Atmos. Oceanic Technol.*, 12, 1129-1133, 1995.
- Langford, A. O., Identification and correction of analog-to-digital-converter nonlinearities and their implications for differential absorption lidar measurements, *Appl. Opt.*, 34, 8330-8340, 1995.
- McAfee, J. R., K. S. Gage, and R. G. Strauch, Vertical velocities at Platteville, Colorado: An intercomparison of simultaneous measurements by the VHF and UHF profilers, *Radio Sci.*, 34, 1027-1042, 1995.
- Mote, P. W., K. H. Rosenlof, J. R. Holton, R. S. Harwood, and J. W. Waters, Seasonal variations of water vapor in the tropical lower stratosphere, *Geophys. Res. Lett.*, 22, 1093-1096, 1995.

## PUBLICATIONS: CLIMATE

- Murphy, D. M., and D. S. Thomson, Laser ionization mass spectroscopy of single aerosol particles, *Aerosol Sci. Technol.*, 22, 237-249, 1995.
- Portmann, R. W., G. E. Thomas, S. Solomon, and R. R. Garcia, The importance of dynamical feedbacks on doubled CO<sub>2</sub>-induced changes in the thermal structure of the mesosphere, *Geophys. Res. Lett.*, 22, 1733-1736, 1995.
- Proffitt, M. H., and A. O. Langford, Profiling of ozone in the free troposphere by the lidar technique, *Rev. Laser Eng.*, 23, 104-107, 1995.
- Ravishankara, A. R., Chemistry of ozone in the upper troposphere and lower stratosphere: Perspectives from laboratory studies, in *Atmospheric Ozone as a Climate Gas*, W.-C. Wang and I. S. A. Isaksen, eds., Springer-Verlag, Vol. I 32, 343-361, 1995.
- Reid, G. C., Charge balance at the summer polar mesopause: Ice particles, electrons, and PMSE, in *The Upper Mesosphere and Lower Thermosphere: A Review of Experiment and Theory*, R. M. Johnson and T. L. Killeen, eds., American Geophysical Union, Geophysical Monograph 87, 201-208, 1995.
- Reid, G. C., The sun-climate question: Is there a real connection?, *Revs. Geophys. Suppl.*, 535-538, 1995.
- Stu, H.-H., J. C. Neeline, and D. Gutzler, Seasonal and interannual variability in a hybrid coupled GCM, *J. Clim.*, 8, 2121-2143, 1995.
- Wilczak, J. M., R. G. Strauch, F. M. Ralph, B. L. Weber, D. A. Merritt, J. R. Jordon, D. E. Wolfe, D. B. Wuertz, J. E. Gaynor, S. A. McGlaughlin, R. R. Rogers, A. C. Riddle, and T. S. Dye, Contamination of wind profiler data by migrating birds: Characteristics of corrupted data and potential solutions, *J. Atmos. Oceanic Technol.*, 12, 449-467, 1995.
- Williams, C., W. Ecklund, and K. Gage, Classification of precipitating clouds in the tropics using 915-MHz wind profilers, *J. Atmos. Oceanic Technol.*, 12, 996-1012, 1995.

## 1996

- Akimoto, H., H. Mukai, M. Nishikawa, K. Murano, S. Hatakeyama, C.-M. Liu, M. Buhr, K. J. Hsu, D. A. Jaffe, L. Zhang, R. Honrath, J. T. Merrill, and R. E. Newell, Long-range transport of ozone in the east Asian Pacific rim region, *J. Geophys. Res.*, 101, 1999-2010, 1996.
- Angevine, W. M., M. K. Trainer, S. A. McKeen, and C. M. Berkowitz, Mesoscale meteorology of the New England coast, Gulf of Maine, and Nova Scotia: Overview, *J. Geophys. Res.*, 101, 28893-28901, 1996.
- Angevine, W. M., M. P. Buhr, J. S. Holloway, M. Trainer, D. D. Parrish, J. I. MacPherson, G. L. Kok, R. D. Schillawski, and D. H. Bowlby, Local meteorological features affecting chemical measurements at a North Atlantic coastal site, *J. Geophys. Res.*, 101, 28935-28946, 1996.
- Apel, E. C., S. A. Penkett, J. J. Blake, W. H. Broadgate, R. Atkinson, F. C. Fehsenfeld, C. N. Hewitt, C. Kolb, H. B. Singh, T. Gilpin, and P. Zimmerman, Sources, distributions, and measurement of atmospheric nonmethane hydrocarbons, in *Atmospheric Chemistry: Present Status and Future Instrument Platform Needs*, A. R. Ravishankara, ed., National Academy of Sciences, 1996.
- Atherton, C. S., S. Grotj, D. D. Parrish, J. E. Penner, and J. J. Walton, The role of anthropogenic emissions of NO<sub>x</sub> on tropospheric ozone over the North Atlantic Ocean: A three-dimensional, global model study, *Atmos. Environ.*, 30, 1739-1749, 1996.

## PUBLICATIONS: CLIMATE

- Atlas, E., B. Ridley, J. Walega, J. Greenberg, G. Kok, T. Staffelbach, S. Schauffler, J. Lind, G. Hübner, R. Norton, GTE PEM-West Science Team, E. Dlugokencky, J. Elkins, S. Oltmans, G. Mackay, and D. Karcz, A comparison of aircraft and ground-based measurements at Mauna Loa Observatory, Hawaii, during GTE PEM-West and MLOPEX 2, *J. Geophys. Res.*, 101, 14599-14612, 1996.
- Barone, S. B., A. A. Turnipseed, and A. R. Ravishankara, Reaction of OH with dimethyl sulfide (DMS). 1. Equilibrium constant for OH + DMS reaction and the kinetics of the OH-DMS + O<sub>2</sub> reaction, *J. Phys. Chem.*, 100, 14694-14702, 1996.
- Browell, E. V., M. A. Fenn, C. F. Butler, W. B. Grant, J. T. Merrill, R. E. Newell, J. D. Bradshaw, S. T. Sandholm, B. E. Anderson, A. R. Bandy, A. S. Bachmeier, D. R. Blake, D. D. Davis, G. L. Gregory, B. G. Heikes, Y. Kondo, S. C. Liu, F. S. Rowland, G. W. Sache, H. B. Singh, R. W. Talbot, and D. C. Thornton, Large-scale air mass characteristics observed over western Pacific during summertime, *J. Geophys. Res.*, 101, 1691-1712, 1996.
- Buhr, M. P., K.-J. Hsu, S. C. Liu, R. Liu, L. Wei, Y.-C. Liu, and Y.-S. Kuo, Trace gas measurements and air mass classification from a ground station in Taiwan during the PEM-West A experiment (1991), *J. Geophys. Res.*, 101, 2025-2035, 1996.
- Buhr, M., D. Sueper, M. Trainer, P. Goldan, B. Kuster, F. Fehsenfeld, G. Kok, R. Shillawski, and A. Schanot, Trace gas and aerosol measurements using aircraft data from the North Atlantic Regional Experiment (NARE 1993), *J. Geophys. Res.*, 101, 29013-29027, 1996.
- Cohn, S. A., J. R. Gyakum, R. R. Rogers, W. L. Ecklund, D. A. Carter, and J. S. Wilson, Wind profiler/RASS observations of two complex synoptic events, *Beitr. Phys. Atmosph.*, 69, 37-47, 1996.
- Davis, D. D., J. Crawford, G. Chen, W. Chameides, S. Liu, J. Bradshaw, S. Sandholm, G. Sachse, G. Gregory, B. Anderson, J. Barrick, A. Bachmeier, J. Collins, E. Browell, D. Blake, S. Rowland, Y. Kondo, H. Singh, R. Talbot, G. Heikes, J. Merrill, J. Rodriguez, and R. E. Newell, Assessment of ozone photochemistry in the western North Pacific as inferred from PEM-West A observations during the fall of 1991, *J. Geophys. Res.*, 101, 2111-2134, 1996.
- Davis, D., J. Crawford, S. Liu, S. McKeen, F. Rowland, and D. Blake, Potential impact of iodine on tropospheric levels of ozone and other critical oxidants, *J. Geophys. Res.*, 101, 2135-2147, 1996.
- Drummond, F. J., R. R. Rogers, S. A. Cohn, W. L. Ecklund, D. A. Carter, and J. S. Wilson, A new look at the melting layer, *J. Atmos. Sci.*, 53, 759-769, 1996.
- Fehsenfeld, F. C., M. Trainer, D. D. Parrish, A. Volz-Thomas, and S. Penkett, North Atlantic Regional Experiment 1993 summer intensive: Foreword, *J. Geophys. Res.*, 101, 28869-28875, 1996.
- Fehsenfeld, F. C., P. Daum, W. R. Leaitch, M. Trainer, D. D. Parrish, and G. Hübner, Transport and processing of O<sub>3</sub> and O<sub>3</sub> precursors over the North Atlantic: An overview of the 1993 North Atlantic Regional Experiment (NARE) summer intensive, *J. Geophys. Res.*, 101, 28877-28891, 1996.
- Gage, K. S., C. R. Williams, and W. L. Ecklund, Application of the 915 MHz profiler for diagnosing and classifying tropical precipitating cloud systems, *Meteorol. Atmos. Phys.*, 59, 141-151, 1996.
- Gage, K. S., J. R. McAfee, and C. R. Williams, On the annual variation of tropospheric zonal winds observed above Christmas Island in the central equatorial Pacific, *J. Geophys. Res.*, 101, 15061-15070, 1996.
- Gage, K. S., J. R. McAfee, and C. R. Williams, Recent changes in tropospheric circulation over the central equatorial Pacific, *Geophys. Res. Lett.*, 23, 2149-2152, 1996.

## PUBLICATIONS: CLIMATE

- Gierczak, T., R. K. Talukdar, J. B. Burkholder, R. W. Portmann, J. S. Daniel, S. Solomon, and A. R. Ravishankara, Atmospheric fate and greenhouse warming potentials of HFC 236fa and HFC 236ea, *J. Geophys. Res.*, 101, 12905-12911, 1996.
- Hartten, L. M., The synoptic settings of westerly wind bursts, *J. Geophys. Res.*, 101, 16997-17019, 1996.
- Kleinman, L. I., P. H. Daum, S. R. Springston, W. R. Leitch, C. M. Banic, G. A. Isaac, B. T. Jobson, and H. Niki, Measurement of O<sub>3</sub> and related compounds over southern Nova Scotia 2. Photochemical age and vertical transport, *J. Geophys. Res.*, 101, 29061-29074, 1996.
- Lamarque, J.-F., A. O. Langford, and M. H. Proffitt, Cross-tropopause mixing of ozone through gravity wave breaking: Observation and modeling, *J. Geophys. Res.*, 101, 22969-22976, 1996.
- Langford, A. O., C. D. Masters, M. H. Proffitt, E.-Y. Hsie, and A. F. Tuck, Ozone measurements in a tropopause fold associated with a cut-off low system, *Geophys. Res. Lett.*, 23, 2501-2504, 1996.
- Langford, A. O., M. H. Proffitt, T. E. Van Zandt, and J.-F. Lamarque, Modulation of tropospheric ozone by a propagating gravity wave, *J. Geophys. Res.*, 101, 26605-26613, 1996.
- Lin, X., F. Zaucker, E. Y. Hsie, M. K. Trainer, and S. A. McKeen, Radon 222 simulations as a test of a three-dimensional regional transport model, *J. Geophys. Res.*, 101, 29165-29177, 1996.
- Meehl, G. A., G. N. Kiladis, K. M. Weickmann, M. Wheeler, D. S. Gutzler, and G. P. Compo, Modulation of equatorial subseasonal convective episodes by tropical-extratropical interaction in the Indian and Pacific Ocean regions, *J. Geophys. Res.*, 101, 15033-15049, 1996.
- Moody, J. L., J. C. Davenport, J. T. Merrill, S. J. Oltmans, D. D. Parrish, J. S. Holloway, H. Levy, II, G. L. Forbes, M. Trainer, and M. Buhr, Meteorological mechanisms for transporting O<sub>3</sub> over the western north Atlantic Ocean: A case study for August 24-29, 1993, *J. Geophys. Res.*, 101, 29213-29227, 1996.
- Mote, P. W., K. H. Rosenlof, M. E. McIntyre, E. S. Carr, J. C. Gille, J. R. Holton, J. S. Kinnersley, H. C. Pumphrey, J. M. Russell, III, and J. W. Waters, An atmospheric tape recorder: The imprint of tropical tropopause temperatures on stratospheric water vapor, *J. Geophys. Res.*, 101, 3989-4006, 1996.
- Nastrom, G. D., and T. E. Van Zandt, Biases due to gravity waves in wind profiler measurements of winds, *J. Appl. Meteor.*, 35, 243-257, 1996.
- Nastrom, G. D., W. L. Clark, T. E. Van Zandt, and J. M. Warnock, Seasonal and diurnal change in wind variability from Flatland VHF profiler observations, *Beitr. Phys. Atmosph.*, 69, 5-12, 1996.
- Newell, R. E., W. Hu, Z.-X. Wu, Y. Zhu, H. Akimoto, B. E. Anderson, E. V. Browell, G. L. Gregory, G. W. Sachse, M. C. Shippard, A. S. Bachmeier, A. R. Bandy, D. C. Thornton, D. R. Blake, F. S. Rowland, J. D. Bradshaw, J. H. Crawford, D. D. Davis, S. T. Sandholm, W. Brockett, L. DeGreef, D. Lewis, D. McCormick, E. Monita, J. E. Collins, Jr., B. G. Heikes, J. T. Merrill, K. K. Kelly, S. C. Liu, Y. Kondo, M. Koike, C.-M. Liu, F. Sakamaki, H. B. Singh, J. E. Dibb, and R. W. Talbot, Atmospheric sampling of Supertyphoon Mireille with NASA DC-8 aircraft on September 27, 1991, during PEM-West A, *J. Geophys. Res.*, 101, 1853-1871, 1996.
- Newell, R. E., Y. Zhue, E. V. Browell, S. Ismail, W. G. Read, J. W. Waters, K. K. Kelly, and S. C. Liu, Upper tropospheric water vapor and cirrus: Comparison of DC-8 observations, preliminary UARS microwave limb sounder measurements and meteorological analyses, *J. Geophys. Res.*, 101, pp. 1931-1941, 1996.
- Newell, R. E., Z.-X. Wu, Y. Zhu, W. Hu, E. V. Browell, G. L. Gregory, G. W. Sachse, J. E. Collins, K. K. Kelly, and S. C. Liu, Vertical fine-scale atmospheric structure measured from NASA DC-8 during PEM-West A, *J. Geophys. Res.*, 101, 1943-1960, 1996.

## PUBLICATIONS: CLIMATE

- Oltmans, S. J., H. Levy, J. M. Harris, J. T. Merrill, J. L. Moody, J. A. Lathrop, E. Cuevas, M. Trainer, M. S. O'Neill, J. M. Prospero, H. Vomel, and B. J. Johnson, Summer and spring ozone profiles over the North Atlantic from ozonesonde measurements, *J. Geophys. Res.*, **101**, 29179-29100, 1996.
- Peters, G., and W. M. Angevine, On the correction of RASS-temperature errors due to turbulence, *Beitr. Phys. Atmosph.*, **69**, 81-96, 1996.
- Portman, D. A., and D. S. Gutzler, Explosive volcanic eruptions, the El-Niño-Southern oscillation, and U.S. climate variability, *J. Clim.*, **9**, 17-33, 1996.
- Ravishankara, A. R., Processes at ice surfaces: Physical uptake and reaction, in *Processes of Chemical Exchange between the Atmosphere and Polar Snow*, E. W. Wolff and R. C. Bales, eds., Springer-Verlag, Berlin, Vol. 43, 339-352, 1996.
- Reid, G. C., and K. S. Gage, The tropical tropopause over the western Pacific: Wave driving, convection, and the annual cycle, *J. Geophys. Res.*, **101**, 21233-21241, 1996.
- Reid, G. C., Comment on the solar flare debate, *EOS, Trans., AGU*, **77**, 78, 1996.
- Reid, S. J., and G. Vaughan, Accuracy of ozonesonde measurements in the troposphere, *J. Atmos. Chem.*, **25**, 215-226, 1996.
- Riddle, A. C., W. M. Angevine, W. L. Ecklund, E. R. Miller, D. B. Parsons, D. A. Carter, and K. S. Gage, In situ and remotely sensed horizontal winds and temperature intercomparisons obtained using Integrated Sounding Systems during TOGA COARE, *Beitr. Phys. Atmosph.*, **69**, 49-61, 1996.
- Roberts, J. M., D. D. Parrish, R. B. Norton, S. Bertman, B., J. S. Holloway, M. Trainer, F. C. Fehsenfeld, M. A. Carroll, G. M. Albercook, T. Wang, and G. Forbes, Episodic removal of NO<sub>y</sub> species from the marine boundary-layer over the North Atlantic, *J. Geophys. Res.*, **101**, 28947-28960, 1996.
- Rogers, R. R., S. G. Leblanc, S. A. Cohn, W. L. Ecklund, D. A. Carter, and J. S. Wilson, Profiler measurements of turbulence and wind shear in a snowstorm, *Beitr. Phys. Atmosph.*, **69**, 27-36, 1996.
- Smyth, S., J. Bradshaw, S. Sandholm, S. Liu, S. McKeen, G. Gregory, B. Anderson, R. Talbot, D. Blake, S. Rowland, E. Browell, M. Fenn, J. Merrill, S. Bachmeier, G. Sachse, J. Collins, D. Thornton, D. Davis, and H. Singh, Comparison of free tropospheric western Pacific air mass classification schemes for the PEM-West A Experiment, *J. Geophys. Res.*, **101**, 1743-1762, 1996.
- Solomon, S., and J. S. Daniel, Impact of the Montreal Protocol and its amendments on the rate of change of global radiative forcing, *Clim. Change*, **32**, 7-17, 1996.
- Turnipseed, A. A., S. B. Barone, and A. R. Ravishankara, Reaction of OH with dimethyl sulfide. 2. Products and mechanisms, *J. Phys. Chem.*, **100**, 14703-14713, 1996.
- Wang, T., M. A. Carroll, G. M. Albercook, K. R. Owens, K. A. Duderstadt, A. N. Markevitch, D. D. Parrish, J. S. Holloway, F. C. Fehsenfeld, G. Forbes, and J. Ogren, Ground-based measurements of NO<sub>x</sub> and total reactive oxidized nitrogen (NO<sub>y</sub>) at Sable Island, Nova Scotia, during the NARE 1993 summer intensive, *J. Geophys. Res.*, **101**, 28991-29004, 1996.
- Weinstock, J., Gravity wave activity at various latitudes and heights in the middle atmosphere, *Adv. Space Res.*, **17**, (11)57-(11)66, 1996.

## PUBLICATIONS: CLIMATE

Weinstock, J., Spectra and a global source of gravity waves for the middle atmosphere, *Adv. Space Res.*, 17, 67-76, 1996.

Williams, C. R., and S. K. Avery, Diurnal nonmigrating tidal oscillations forced by deep convective clouds, *J. Geophys. Res.*, 101, 4079-4091, 1996.

Williams, C. R., and S. K. Avery, Diurnal winds observed in the tropical troposphere using 50 MHz wind profilers, *J. Geophys. Res.*, 101, 15051-15060, 1996.

## 1997

Angevine, W. M., Errors in mean vertical velocities measured by boundary-layer wind profilers, *J. Atmos. Oceanic Technol.*, 14, 565-569, 1997.

Chang, J. L., S. K. Avery, A. C. Riddle, S. E. Palo, and K. S. Gage, First results of tropospheric gravity wave momentum flux measurements over Christmas Island, *Radio Sci.*, 32, 727-748, 1997.

Ciesielski, P. E., L. M. Hartten, and R. H. Johnson, Impacts of merging profiler and rawinsonde winds on TOGA COARE analyses, *J. Atmos. Oceanic Technol.*, 14, 1264-1279, 1997.

Folkins, I., R. Chatfield, D. Baumgardner, and M. Proffitt, Biomass burning and deep convection in southeastern Asia: Results from ASHOE/MAESA, *J. Geophys. Res.*, 102, 13291-13299, 1997.

Gierczak, T., R. K. Talukdar, S. C. Herndon, G. L. Vaghjiani, and A. R. Ravishankara, Rate coefficients for the reactions of hydroxyl radicals with methane and deuterated methanes, *J. Phys. Chem.*, 101, 3125-3134, 1997.

Jaeglé, L., D. J. Jacob, P. O. Wennberg, C. M. Spivakovskiy, T. F. Hanisco, E. L. Lanzendorf, E. J. Hintsa, D. W. Fahey, E. R. Keim, M. H. Proffitt, E. L. Atlas, F. Flocke, S. Schauffler, C. T. McElroy, C. Midwinter, L. Pfister, and J. C. Wilson, Observed OH and HO<sub>2</sub> in the upper troposphere suggest a major source from convective injection of peroxides, *Geophys. Res. Lett.*, 24, 3181-3184, 1997.

Jordan, J. R., R. J. Lataitis, and D. A. Carter, Removing ground and intermittent clutter contamination from wind profiler signals using wavelet transforms, *J. Atmos. Oceanic Technol.*, 14, 1280-1297, 1997.

Kiladis, G. N., and K. M. Weickmann, Horizontal structure and seasonality of large-scale circulations associated with submonthly tropical convection, *Mon. Weather Rev.*, 125, 1997-2013, 1997.

Koch, S. E., and W. L. Clark, A nonclassical cold front observed during COPS-91: Frontal structure and the process of severe storm initiation, *J. Atmos. Sci.*, submitted, 1997.

Langford, A. O., C. D. Masters, M. H. Proffitt, E.-Y. Hsie, and A. F. Tuck, Correction to "Ozone measurements in a tropopause fold associated with a cut-off low system", *Geophys. Res. Lett.*, 24, 109, 1997.

McKeen, S. A., T. Gierczak, J. B. Burkholder, P. O. Wennberg, T. F. Hanisco, E. R. Keim, R.-S. Gao, S. C. Liu, A. R. Ravishankara, and D. W. Fahey, The photochemistry of acetone in the upper troposphere: A source of odd-hydrogen radicals, *Geophys. Res. Lett.*, 24, 3177-3180, 1997.

Middlebrook, A. M., D. S. Thomson, and D. M. Murphy, On the purity of laboratory-generated sulfuric acid droplets and ambient particles studied by laser mass spectrometry, *Aerosol Sci. Technol.*, 27, 293-307, 1997.

## PUBLICATIONS: CLIMATE

- Murphy, D. M., D. S. Thomson, and A. M. Middlebrook, Bromine, iodine, and chlorine in single aerosol particles at Cape Grim, *Geophys. Res. Lett.*, 24, 3197-3200, 1997.
- Nastrom, G. D., T. E. Van Zandt, and J. M. Warnock, Vertical wavenumber spectra of wind and temperature from high-resolution balloon soundings over Illinois, *J. Geophys. Res.*, 102, 6685-6701, 1997.
- Newell, R. E., E. V. Browell, D. D. Davis, and S. C. Liu, Western Pacific tropospheric ozone and potential vorticity: Implications for Asian pollution, *Geophys. Res. Lett.*, 24, 2733-2736, 1997.
- Portmann, R. W., S. Solomon, J. Fishman, J. R. Olson, J. T. Kiehl, and B. Briegleb, Radiative forcing of the Earth's climate system due to tropical tropospheric ozone production, *J. Geophys. Res.*, 102, 9409-9417, 1997.
- Post, M. J., C. W. Fairall, J. B. Snider, Y. Han, A. B. White, W. L. Ecklund, K. M. Weickmann, P. K. Quinn, D. I. Cooper, S. M. Sekelsky, R. E. McIntosh, P. Minnett, and R. O. Knuteson, The combined sensor program: An air-sea science mission in the central and western Pacific Ocean, *Bull. Amer. Meteorol. Soc.*, 78, 2797-2815, 1997.
- Proffitt, M. H., and A. O. Langford, Ground-based differential absorption lidar system for day or night measurements of ozone throughout the free troposphere, *Appl. Opt.*, 36, 2568-2585, 1997.
- Ravishankara, A. R., Y. Rudich, R. K. Talukdar, and S. B. Barone, Oxidation of atmospheric reduced sulphur compounds: Perspective from laboratory studies, *Phil. Trans. R. Soc. Lond. B*, 352, 171-182, 1997.
- Reid, G. C., On the influence of electrostatic charging on the coagulation of dust and ice particles in the upper mesosphere, *Geophys. Res. Lett.*, 24, 1095-1098, 1997.
- Reid, G. C., Solar forcing of global climate change since the mid-17th century, *Clim. Change*, 37, 391-405, 1997.
- Reid, G. C., Solar variability and its implications for the human environment, *J. Atmos. Solar Terr. Phys.*, submitted, 1997.
- Reid, G. C., The nucleation and growth of ice particles in the upper mesosphere, *Adv. Space Res.*, 20, 1285-1291, 1997.
- Rosenlof, K. H., A. F. Tuck, K. K. Kelly, J. M. Russell, III, and M. P. McCormick, Hemispheric asymmetries in water vapor and inferences about transport in the lower stratosphere, *J. Geophys. Res.*, 102, 13213-13234, 1997.
- Thomson, D. S., A. M. Middlebrook, and D. M. Murphy, Thresholds for laser-induced ion formation from aerosols in a vacuum using ultraviolet and vacuum-ultraviolet laser wavelengths, *Aerosol Sci. Technol.*, 26, 544-559, 1997.
- Tsuda, T., T. E. Van Zandt, and H. Saito, Zenith-angle dependence of VHF specular reflection echoes in the lower atmosphere, *J. Atmos. Solar Terr. Phys.*, 59, 761-775, 1997.
- Waters, J. W., S. Dorling, J.-H. Kim, M. Morrey, and K. Rosenlof, The Upper Atmosphere Research Satellite (UARS) in the stratosphere and its role in the climate system, in *The Stratosphere and its Role in the Climate System*, G. Brasseur, ed., Springer-Verlag, Berlin, Heidelberg, Germany, Vol. I 54, 345-365, 1997.
- Weickmann, K. M., G. N. Kiladis, and P. D. Sardeshmukh, The dynamics of intraseasonal atmospheric angular momentum oscillations, *J. Atmos. Sci.*, 54, 1445-1461, 1997.

## PUBLICATIONS: CLIMATE

Weinstock, J., Theory for the off-diagonal element of dissipation in homogeneous shear turbulence, *Phys. Fluids*, 9, 2171-2173, 1997.

Williams, C. R., Principal component analysis of wind profiler observations, *J. Atmos. Oceanic Technol.*, 14, 386-395, 1997.

## 1998

Albritton, D. L., The atmosphere and humankind: Our related futures, in *Atmospheric Chemistry and Global Change*, G. Brasseur, J. Orlando and G. Tyndall, eds., Oxford University Press, New York, in press, 1998.

Angevine, W. M., A. W. Grimsdell, L. M. Hartten, and A. C. Delany, The Flatland boundary-layer experiments, *Bull. Amer. Meteorol. Soc.*, 79, 419-431, 1998.

Angevine, W. M., P. S. Bakwin, and K. J. Davis, Wind profiler and RASS measurements compared with measurements from a 450-m-tall tower, *J. Atmos. Oceanic Technol.*, 15, 818-825, 1998.

Atlas, D., C. W. Ulbrich, E. Amitai, F. D. Marks, and C. R. Williams, The nature and radar properties of tropical rain, Part II: Evaporation and altitude dependence, *J. Appl. Meteor.*, submitted, 1998.

Atlas, D., C. W. Ulbrich, F. D. Marks, Jr., E. Amitai, and C. R. Williams, Systematic variation of drop size and radar-rainfall relations, *J. Geophys. Res.*, submitted, 1998.

Brasseur, G. P., D. A. Hauglustaine, S. Walters, P. J. Rasch, J.-F. Müller, C. Granier, and X. X. Tie, MOZART: A global chemical transport model for ozone and related chemical tracers, part 1. Model description, *J. Geophys. Res.*, submitted, 1998.

Brasseur, G. P., J. T. Kiehl, J.-F. Müller, T. Schneider, C. Granier, X. X. Tie, and D. Hauglustaine, Past and future changes in global tropospheric ozone: Impact on radiative forcing, *Geophys. Res. Lett.*, submitted, 1998.

Cifelli, R. C., C. R. Williams, D. K. Rajopadhyaya, S. K. Avery, K. S. Gage, and P. T. May, Drop size distribution characteristics in tropical mesoscale convective systems, *J. Appl. Meteor.*, submitted, 1998.

Compo, G. P., G. N. Kiladis, and P. J. Webster, The horizontal and vertical structure of east Asian winter monsoon pressure surges, *Q. J. R. Meteorol. Soc.*, in press, 1998.

Daniel, J. S., and S. Solomon, On the climate forcing of carbon monoxide, *J. Geophys. Res.*, 103, 13249-13260, 1998.

Duderstadt, K. A., M. A. Carroll, S. Sillman, T. Wang, G. M. Albercock, L. Feng, D. D. Parrish, J. S. Holloway, F. C. Fehsenfeld, D. R. Blake, N. J. Blake, and G. Forbes, Photochemical production and loss rates of ozone at Sable Island, Nova Scotia during the North Atlantic Regional Experiment (NARE) 1993 summer intensive, *J. Geophys. Res.*, 103, 13531-13555, 1998.

Ecklund, W. L., C. R. Williams, P. E. Johnston, and K. S. Gage, A 3 GHz profiler for precipitating cloud studies, *J. Atmos. Oceanic Technol.*, in press, 1998.

Ellison, G. B., A. F. Tuck, and V. Vaida, Atmospheric processing of organic aerosols, *J. Geophys. Res.*, submitted, 1998.

Gage, K. S., C. R. Williams, W. L. Ecklund, and P. E. Johnston, Use of two profilers during MCTEX for unambiguous identification of Bragg scattering and Rayleigh scattering, *J. Atmos. Sci.*, in press, 1998.

- Granier, C., J.-F. Müller, G. Petron, and G. Brasseur, A three-dimensional study of the global CO budget, *Chemosphere*, submitted, 1998.
- Grimsdell, A. W., and W. M. Angevine, Convective boundary-layer height measurement with wind profilers and comparison to cloudbase, *J. Atmos. Oceanic Technol.*, in press, 1998.
- Grivet-Talocia, S., F. Einaudi, W. L. Clark, R. D. Dennett, G. D. Nastrom, and T. E. Van Zandt, Four-year climatology of pressure disturbances using a barometer network in central Illinois, *Mon. Weather Rev.*, in press, 1998.
- Hartten, L. M., and D. S. Gutzler, Estimates of large-scale divergence in the lower troposphere over the western equatorial Pacific, *J. Geophys. Res.*, in press, 1998.
- Hartten, L. M., Reconciliation of surface and profiler winds at ISS sites, *J. Atmos. Oceanic Technol.*, 15, 826-834, 1998.
- Kiladis, G. N., and K.-C. Mo, Chapter 8: Interannual and intraseasonal variability in the Southern Hemisphere, in *Southern Hemisphere Meteorology*, D. Karoly and D. Vincent, eds., American Meterological Society, in press, 1998.
- Kiladis, G. N., Observations of Rossby waves linked to convection over the eastern tropical Pacific, *J. Atmos. Sci.*, 55, 321-339, 1998.
- Kleinman, L. I., P. H. Daum, J. H. Lee, Y.-N. Lee, J. Weinstein-Lloyd, S. R. Springston, M. Buhr, and B. T. Jobson, Photochemistry of O<sub>3</sub> and related compounds over Southern Nova Scotia, *J. Geophys. Res.*, 103, 13519-13529, 1998.
- Langford, A. O., and S. J. Reid, Dissipation and mixing of a small-scale stratospheric intrusion in the upper troposphere, *J. Geophys. Res.*, in press, 1998.
- Langford, A. O., T. J. O'Leary, C. D. Masters, K. C. Aikin, and M. H. Proffitt, Modulation of middle and upper tropospheric ozone at northern midlatitudes by the El Niño/Southern Oscillation, *Geophys. Res. Lett.*, 25, 2667-2670, 1998.
- Liebmann, B., G. N. Kiladis, J. A. Marengo, T. Ambrizzi, and J. D. Glick, Submonthly convective variability over South America and the south Atlantic convergence zone, *J. Clim.*, submitted, 1998.
- Lin, X., M. Trainer, and E.-Y. Hsie, A modeling study of tropospheric species during the North Atlantic Regional Experiment (NARE), *J. Geophys. Res.*, 103, 13593-13613, 1998.
- Matthews, A. J., and G. N. Kiladis, Interactions between interannual and transient circulations and tropical convection over the Pacific, *J. Clim.*, submitted, 1998.
- Matthews, A. J., and G. N. Kiladis, The tropical-extratropical interaction between high-frequency transients and the Madden-Julian oscillation, *Mon. Weather Rev.*, in press, 1998.
- Mauldin, R. L., III, G. J. Frost, G. Chen, D. J. Tanner, A. S. H. Prevot, D. D. Davis, and F. L. Eisele, OH measurements during the First Aerosol Characterization Experiment (ACE-1): Observations and model comparisons, *J. Geophys. Res.*, 103, 16713-16729, 1998.
- McPhaden, M. J., A. J. Busalacchi, R. Cheney, J.-R. Donguy, K. S. Gage, D. Halpern, M. Ji, P. Julian, G. Meyers, G. T. Mitchum, P. P. Niiler, J. Picaut, R. W. Reynolds, N. Smith, and K. Takeuchi, The Tropical Ocean Global Atmosphere (TOGA) observing system: A decade of progress, *J. Geophys. Res.*, 103, 14169-14240, 1998.
- Middlebrook, A. M., D. M. Murphy, and D. S. Thomson, Observations of organic material in individual marine particles at Cape Grim during the First Aerosol Characterization Experiment (ACE-1), *J. Geophys. Res.*, 103, 16475-16483, 1998.
- Murphy, D. M., D. S. Thomson, A. M. Middlebrook, and M. E. Schein, In situ single particle characterization at Cape Grim, *J. Geophys. Res.*, 103, 16485-16491, 1998.

## PUBLICATIONS: CLIMATE

- Murphy, D. M., J. R. Anderson, P. K. Quinn, L. M. McInnes, F. J. Brechtel, S. M. Kreidenwies, A. M. Middlebrook, M. Posfai, D. S. Thomson, and P. R. Buseck, Influence of sea salt on aerosol radiative properties in the southern ocean marine boundary layer, *Nature*, 392, 62-65, 1998.
- Novelli, P. C., V. S. Connors, H. G. Reichle, Jr., B. E. Anderson, C. A. M. Brenninkmeijer, E. G. Brunke, B. G. Doddridge, V. W. J. H. Kirchhoff, J. K. S. Lam, K. A. Masarie, T. Matsuo, D. D. Parrish, H. E. Scheel, and L. P. Steele, An internally consistent set of globally distributed atmospheric carbon monoxide mixing ratios developed using results from an intercomparison of measurements, *J. Geophys. Res.*, in press, 1998.
- Parrish, D. D., M. Trainer, J. S. Holloway, J. E. Yee, M. S. Warshawsky, F. C. Fehsenfeld, G. L. Forbes, and J. L. Moody, Relationships between ozone and carbon monoxide at surface sites in the North Atlantic region, *J. Geophys. Res.*, 103, 13357-13376, 1998.
- Penkett, S. A., A. Volz-Thomas, D. D. Parrish, R. E. Honrath, and F. C. Fehsenfeld, North Atlantic Regional Experiment (NARE II): Preface, *J. Geophys. Res.*, 103, 13353-13355, 1998.
- Peterson, M. C., R. E. Honrath, D. D. Parrish, and S. J. Oltmans, Measurements of nitrogen oxides and a simple model of NO<sub>y</sub> fate in the remote North Atlantic marine atmosphere, *J. Geophys. Res.*, 103, 13489-13503, 1998.
- Rajopadhyaya, D. K., P. T. May, R. C. Cifelli, S. K. Avery, C. R. Williams, W. L. Ecklund, and K. S. Gage, The effect of vertical air motions on rain rates and median volume diameter determined from combined UHF and VHF wind profiler measurements and comparisons with rain gauge measurements, *J. Atmos. Oceanic Technol.*, in press, 1998.
- Ravishankara, A. R., G. Hancock, M. Kawasaki, and Y. Matsumi, Photochemistry of ozone: Surprises and recent lessons, *Science*, 280, 60-61, 1998.
- Reid, S. J., G. Vaughan, and A. F. Tuck, The abundance, persistence and trends of subtropical intrusions into the mid-latitude lower stratosphere, *J. Geophys. Res.*, submitted, 1998.
- Ridley, B. A., J. Walega, G. Hübler, D. Montzka, E. Atlas, D. Hauglustaine, F. Grahek, J. Lind, T. Campos, R. B. Norton, J. Greenberg, S. Schauffler, S. Oltmans, and S. Whittlestone, Measurements of NO<sub>x</sub> and PAN and estimates of O<sub>3</sub> production over the seasons during Mauna Loa Observatory Photochemistry Experiment 2, *J. Geophys. Res.*, 103, 8323-8339, 1998.
- Roberts, J. M., S. B. Bertman, D. D. Parrish, F. C. Fehsenfeld, B. T. Jobson, and H. Niki, Measurement of alkyl nitrates at Chebogue Point, Nova Scotia during the 1993 North Atlantic Regional Experiment (NARE) intensive, *J. Geophys. Res.*, 103, 13569-13580, 1998.
- Roberts, J. M., S. B. Bertman, T. Jobson, H. Niki, and R. Tanner, Measurement of total nonmethane organic carbon (C<sub>y</sub>): Development and application at Chebogue Point, Nova Scotia, during the 1993 North Atlantic Regional Experiment campaign, *J. Geophys. Res.*, 103, 13581-13592, 1998.
- Sandor, B. J., W. G. Read, J. W. Waters, and K. H. Rosenlof, Seasonal behavior of tropical to mid-latitude upper tropospheric water vapor from UARS MLS, *J. Geophys. Res.*, submitted, 1998.
- Sekelsky, S. M., W. L. Ecklund, J. M. Firda, K. S. Gage, and R. E. McIntosh, Particle size estimation in ice-phase cloud using multi-frequency radar reflectivity measurements at 95 GHz, 33 GHz and 2.8 GHz, *J. Appl. Meteor.*, in press, 1998.
- Solomon, S., R. W. Portmann, R. W. Sanders, and J. S. Daniel, Absorption of solar radiation by water vapor, oxygen and related collision pairs in the earth's atmosphere, *J. Geophys. Res.*, 103, 3847-3858, 1998.
- Tokay, A., D. A. Short, C. R. Williams, W. L. Ecklund, and K. S. Gage, Tropical rainfall associated with convective and stratiform clouds: Intercomparison of disdrometer and profiler measurements, *J. Appl. Meteor.*, in press, 1998.

## PUBLICATIONS: CLIMATE

- Weinstock, J., Derivation of the Kolmogorov spectrum by three-point closure theory, *J. Fluid Mech.*, submitted, 1998.
- Weinstock, J., On the validity of a diffusion approximation for spectral energy transfer in homogeneous turbulence, *J. Fluid Mech.*, submitted, 1998.
- Weinstock, J., Spectral closure for stratified turbulence, in *Physical Processes in Lakes and Oceans: Coastal and Estuarine Studies*, J. Imberger, ed., American Geophysical Union, Vol. 54, 339-350, 1998.
- Wennberg, P. O., T. F. Hanisco, L. Jaeglé, D. J. Jacob, E. J. Hintsa, E. J. Lanzendorf, J. G. Anderson, R.-S. Gao, E. R. Keim, S. G. Donnelly, L. A. Del Negro, D. W. Fahey, S. A. McKeen, R. J. Salawitch, C. R. Webster, R. D. May, R. L. Herman, M. H. Proffitt, J. J. Margitan, E. L. Atlas, S. M. Schauffler, F. Flocke, C. T. McElroy, and T. P. Bui, Hydrogen radicals, nitrogen radicals, and the production of  $O_3$  in the upper troposphere, *Science*, 279, 49-53, 1998.
- Westwater, E. R., Y. Han, J. B. Snider, K. S. Gage, W. Ecklund, A. Riddle, J. H. Churnside, J. A. Shaw, M. J. Falls, C. N. Long, and T. P. Ackerman, Ground-based remote sensor observations during PROBE in the tropical western Pacific, *Bull. Amer. Meteorol. Soc.*, submitted, 1998.
- Wheeler, M., and G. N. Kiladis, Convectively-coupled equatorial waves: Analysis of clouds in the wavenumber-frequency domain, *J. Atmos. Sci.*, in press, 1998.
- Wheeler, M., G. N. Kiladis, and P. J. Webster, Large-scale dynamical fields associated with convectively-coupled equatorial waves, *J. Atmos. Sci.*, submitted, 1998.